in the table of ordinates. The difference between the sums of the respective products and those of the standard divided by 8 measures the deficiency or excess of sheer in the forward or after half. The arithmetical mean of the excess or deficiency in the forward and after halves measures the excess or deficiency of sheer.

(2) Where the after half of the sheer has an excess and the forward half of the sheer has a deficiency, no credit shall be allowed for the part in excess and deficiency only shall be measured.

(3) Where the forward half of the sheer profile exceeds the standard, and the after portion of the sheer profile is not less than 75 percent of the standard, credit shall be allowed for the part in excess; where the after part is less than 50 percent of the standard, no credit shall be given for the excess sheer forward. Where the after sheer is between 50 percent and 75 percent of the standard, intermediate allowances may be granted for excess sheer forward.

(4) Where sheer credit is given for a poop or forecastle, the following formula shall be used:

$$s=(y/3)(L'/L)$$

where:

s=sheer credit, to be deducted from the deficiency or added to the excess of sheer.
y=difference between actual and standard height of superstructure at the end ordinate.
L'=mean enclosed length of poop or forecastle up to a maximum length of $0.5L$.
L=length of vessel as defined in §42.13–15(a).

(i) The formula in this paragraph (c)(4) of this section provides a curve in the form of a parabola tangent to the actual sheer curve at the freeboard deck and intersecting the end ordinate at a point below the superstructure deck a distance equal to the standard height of a superstructure. The superstructure deck shall not be less than standard height above this curve at any point. This curve shall be used in determining the sheer profile for forward and after halves of the vessel.

(d) *Correction for variations from standard sheer profile.* (1) The correction for sheer shall be the deficiency or excess of sheer (see paragraphs (c) (1) to (4) inclusive of this section) multiplied by:

$$0.75-(S/2L)$$

where:

S is the total length of enclosed superstructures.

(e) *Addition for deficiency in sheer.* (1) Where the sheer is less than the standard, the correction for deficiency in sheer (see paragraph (d)(1) of this section) shall be added to the freeboard.

(f) *Deduction for excess sheer.* (1) In vessels where an enclosed superstructure covers $0.1L$ before and $0.1L$ abaft amidships, the correction for excess of sheer as calculated under the provisions of paragraph (d)(1) of this section shall be deducted from the freeboard; in vessels where no enclosed superstructure covers amidships, no deduction shall be made from the freeboard; where an enclosed superstructure covers less than $0.1L$ before and $0.1L$ abaft amidships, the deduction shall be obtained by linear interpolation. The maximum deduction for excess sheer shall be at the rate of 1½ inches per 100 feet of length.

[CGFR 68–60, 33 FR 10066, July 12, 1968, as amended by CGFR 68–126, 34 FR 9016, June 5, 1969]

§42.20–70 Minimum bow height.

(a) The bow height defined as the vertical distance at the forward perpendicular between the waterline corresponding to the assigned summer freeboard and the designed trim and the top of the exposed deck at side shall be not less than:

(1) For vessels below 820 feet in length,

$$0.672L[1-(L/1640)][1.36/(C_b+0.68)] \text{ inches;}$$

where:

L is the length of the vessel in feet.
C_b is the block coefficient which is to be taken as not less than 0.68.

(2) For vessels of 820 feet and above in length,

$$275.6[1.36/(C_b+0.68)] \text{ inches;}$$

where:

C_b is the block coefficient which is to be taken as not less than 0.68.

(b) Where the bow height required in paragraph (a) of this section is obtained by sheer, the sheer shall extend for at least 15 percent of the length of the vessel measured from the forward

perpendicular. Where it is obtained by fitting a superstructure, such superstructure shall extend from the stem to a point at least 0.07*L* abaft the forward perpendicular, and it shall comply with the following requirements:

(1) For vessels not over 328 feet in length it shall be enclosed as defined in § 42.13–15(j); and,

(2) For vessels over 328 feet in length it need not comply with § 42.13–15(j) but shall be fitted with closing appliances to the satisfaction of the assigning authority.

(c) Vessels which, to suit exceptional operational requirements, cannot meet the requirements of paragraphs (a) and (b) of this section may be given special consideration by the assigning authority.

[CGFR 68–60, 33 FR 10066, July 12, 1968, as amended by CGFR 68–126, 34 FR 9016, June 5, 1969]

§ 42.20–75 Minimum freeboards.

(a) *Summer freeboard.* (1) The minimum freeboard in summer must be the freeboard derived from the tables in § 42.20–15 as modified by the corrections in §§ 42.20–3 and 42.20–5, as applicable, and §§ 42.20–20, 42.20–25, 42.20–30, 42.20–35, 42.20–60, 42.20–65 and, if applicable, § 42.20–70.

(2) The freeboard in salt water, as calculated in accordance with paragraph (a)(1) of this section, but without the correction for deck line, as provided by § 42.20–35, shall not be less than 2 inches. For vessels having in position 1 hatchways with covers which do not comply with the requirements of §§ 42.15–25(d)(1), 42.15–30, or 42.15–80, the freeboard shall be not less than 6 inches.

(b) *Tropical freeboard.* (1) The minimum tropical freeboard shall be the freeboard obtained by a deduction from the summer freeboard of one forty-eighth of the summer draft measured from the top of the keel to the center of the ring of the load line mark.

(2) The freeboard in salt water, as calculated in accordance with paragraph (b)(1) of this section, but without the correction for deck line, as provided by § 42.20–35, shall not be less than 2 inches. For vessels having in position 1 hatchways with covers which do not comply with the requirements of § 42.15–25(d)(1), § 42.15–30, or § 42.15–80, the freeboard shall be not less than 6 inches.

(c) *Winter freeboard.* (1) The minimum winter freeboard shall be the freeboard obtained by an addition to the summer freeboard of one forty-eighth of summer draft, measured from the top of the keel to the center of the ring of the load line mark.

(d) *Winter North Atlantic freeboard.* (1) The minimum freeboard for vessels of not more than 328 feet in length which enter any part of the North Atlantic defined in § 42.30–35 during the winter seasonal period shall be the winter freeboard plus 2 inches. For other vessels the winter North Atlantic freeboard shall be the winter freeboard.

(e) *Fresh water freeboard.* (1) The minimum freeboard in fresh water of unit density shall be obtained by deducting from the minimum freeboard in salt water:

$(\Delta/40\ T)$ inches

where:

Δ=displacement in salt water in tons at the summer load waterline; and,

T=tons per inch immersion in salt water at the summer load waterline.

(2) Where the displacement at the summer load waterline cannot be certified, the deduction shall be one forty-eighth of summer draft, measured from the top of the keel to the center of the ring of the load line mark.

[CGFR 68–60, 33 FR 10066, July 12, 1968, as amended by CGFR 68–126, 34 FR 9016, June 5, 1969; CGD 79–153, 48 FR 38650, Aug. 25, 1983]

Subpart 42.25—Special Requirements for Vessels Assigned Timber Freeboards

§ 42.25–1 Application of this subpart.

(a) The provisions of this subpart 42.25 apply only to vessels to which timber load lines are assigned.

[CGFR 68–60, 33 FR 10067, July 12, 1968]

§ 42.25–5 Definitions of terms used in this subpart.

(a) *Timber deck cargo.* The term ''timber deck cargo'' means a cargo of timber carried on an uncovered part of a freeboard or superstructure deck. The